

INTERNATIONAL SUSTAINABLE ENERGY SUMMIT 2012

AN OVERVIEW OF THE NATIONAL SUSTAINABLE ENERGY FRAMEWORK

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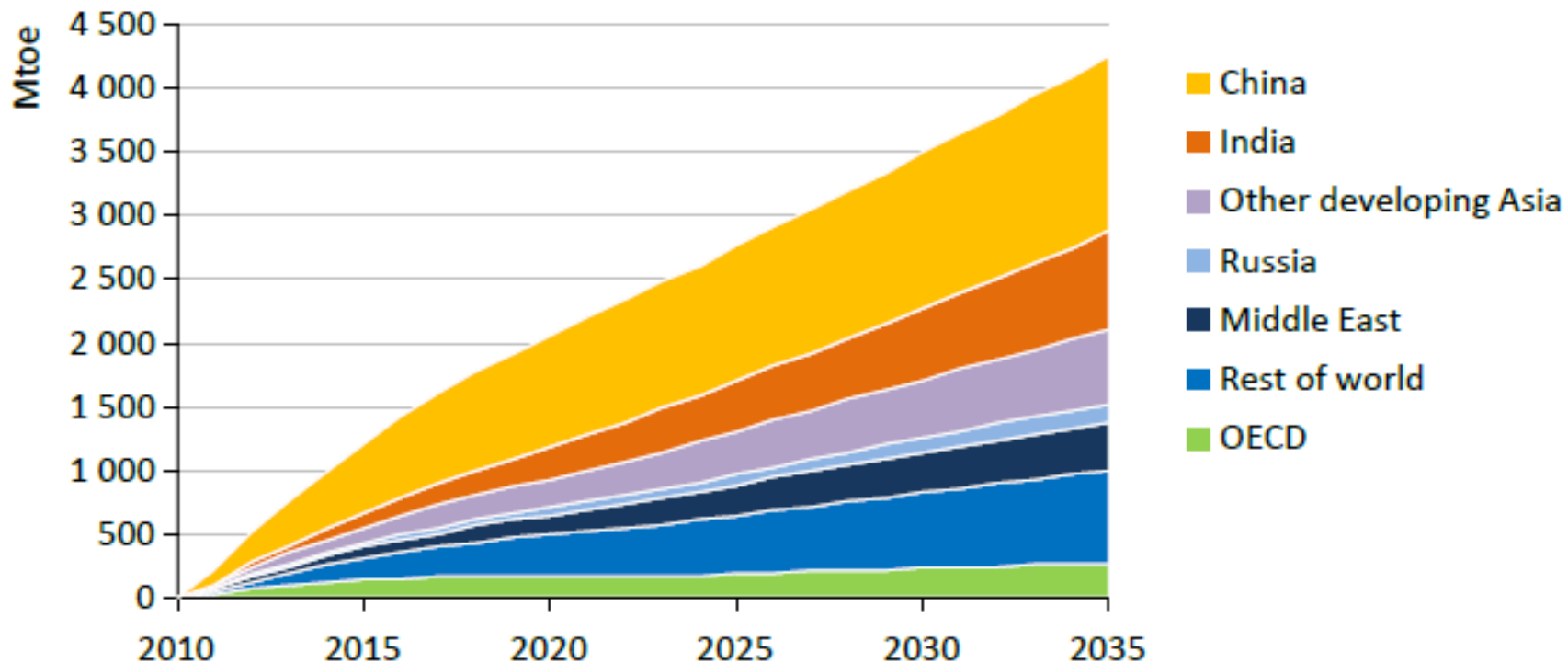
PRESENTATION OUTLINE

- Global Energy Scenario
- Malaysian Policies Related to Sustainable Energy
- Renewable Energy
- Energy Efficiency
- Way Forward



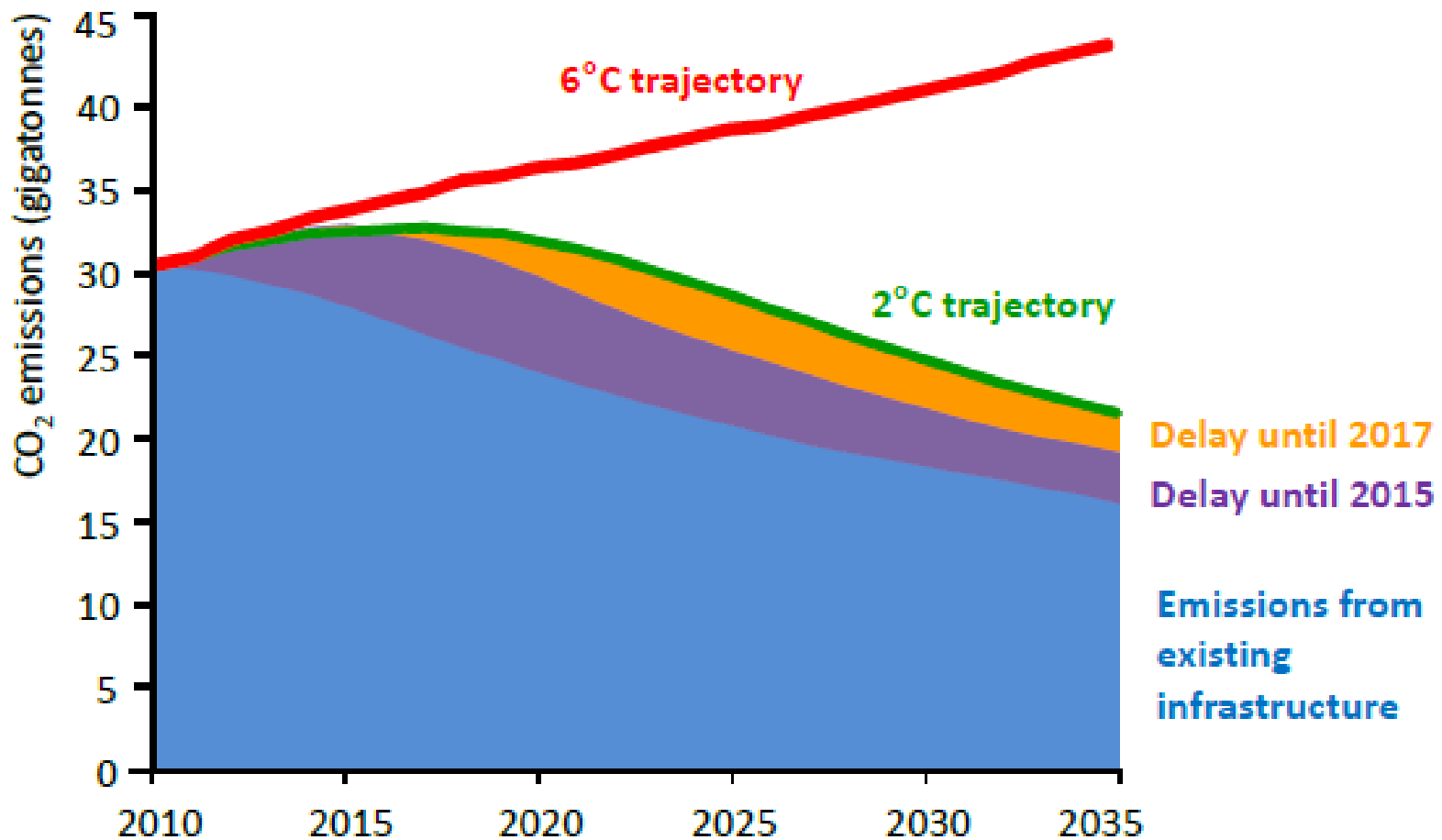
GLOBAL ENERGY SCENARIO

Global Energy Demand



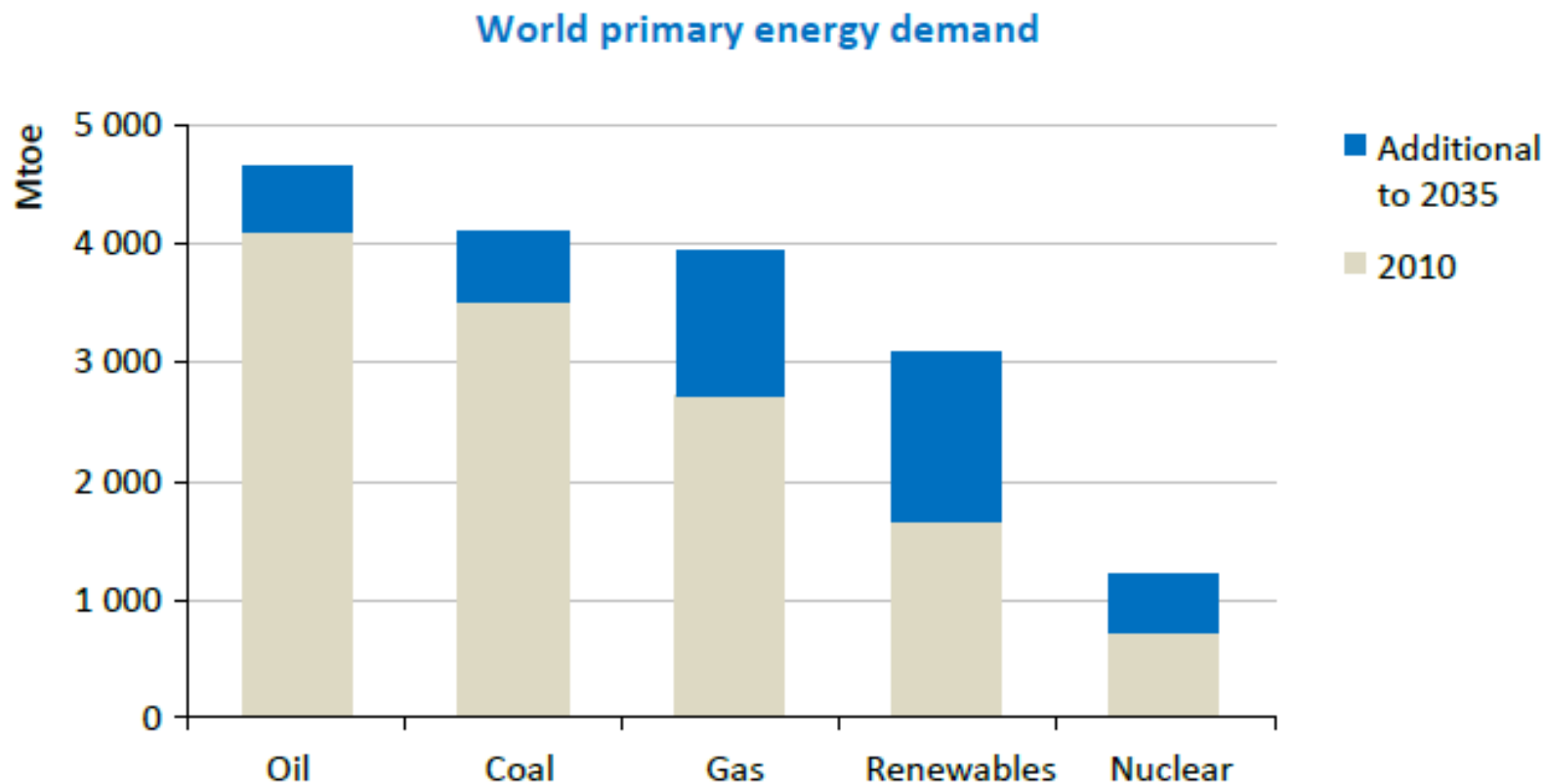
Global energy demand increases by one-third from 2010 to 2035, with China & India accounting for 50% of the growth

Global CO₂ Emission Scenario



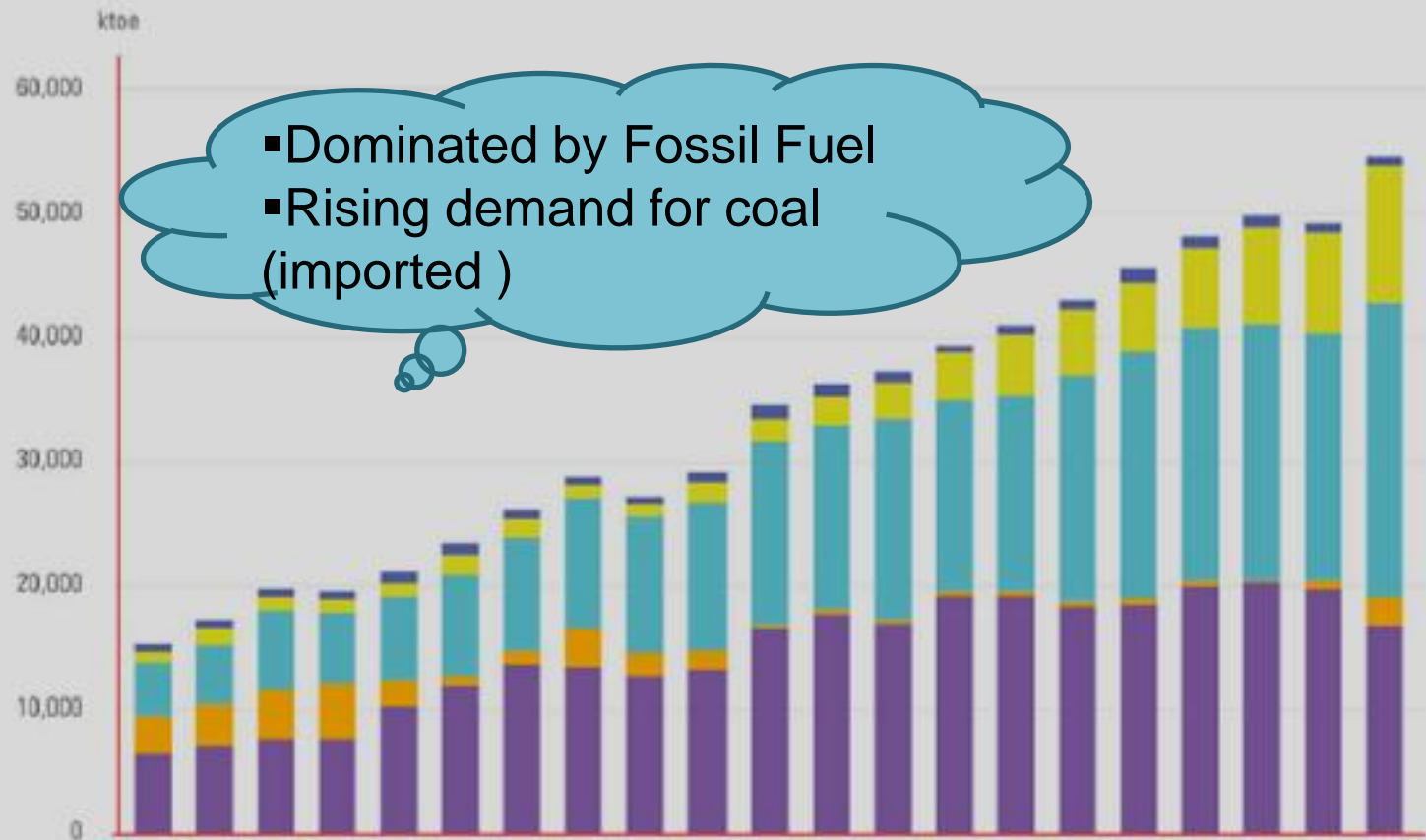
Without further action, by 2017 all CO₂ emissions permitted in the 450 Scenario will be “locked-in” by existing power plants, factories, buildings, etc

Rising Share of Global RE



Renewables & natural gas collectively meet almost two-thirds of incremental energy demand in 2010-2035

Malaysia: Energy Demand by Source



- Dominated by Fossil Fuel
- Rising demand for coal (imported)

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hydropower	915	1,053	997	1,292	1,652	1,540	1,243	700	1,113	1,888	1,500	1,087	1,329	1,958	1,328	1,313	1,508	1,519	1,904	1,827	1,577
Coal And Coke	1,328	1,584	1,840	1,352	1,583	1,812	1,877	1,822	1,731	1,940	2,400	2,970	3,642	5,318	6,831	6,889	7,239	8,848	9,782	10,823	14,777
Natural Gas*	5,800	8,075	8,545	7,729	8,977	11,064	12,338	14,106	14,549	15,883	20,184	20,032	21,802	29,878	21,408	24,783	26,704	27,362	27,800	26,980	31,508
Petroleum Products & Other	3,851	4,165	5,100	5,814	2,448	610	1,098	3,802	1,929	1,887	(1,431)	(1,917)	(521)	(1,391)	(57)	(75)	(1,474)	(935)	(2,282)	96	2,521
Crude Oil	8,783	9,443	10,175	10,135	13,805	16,159	18,255	17,916	17,133	17,643	21,573	23,500	22,647	25,344	25,335	24,339	24,909	25,571	25,776	26,386	22,487

Global CO₂ Emission Reduction Initiatives

Country/ region	Targets
Europe	<ul style="list-style-type: none">■ GHG reduction : 20% to 1990 level by 2020<ul style="list-style-type: none">➤ 20% electricity mix from RE sources by 2020
USA	<ul style="list-style-type: none">■ GHG reduction : 17% to 2005 level by 2020<ul style="list-style-type: none">➤ No national target- only state level
Australia	<ul style="list-style-type: none">■ GHG reduction : 25% to 2000 level by 2020 (condition all parties agree to stabilise CO2 concentration below 450ppm)<ul style="list-style-type: none">➤ 20% electricity mix from RE sources by 2020
Japan	<ul style="list-style-type: none">■ GHG reduction : 25% to 1990 level by 2020
Korea	<ul style="list-style-type: none">■ GHG reduction : 30% from BAU by 2020<ul style="list-style-type: none">➤ 21% electricity mix from RE sources by 2050
Indonesia	<ul style="list-style-type: none">■ GHG reduction : 26% to 2005 level by 2020
China	<ul style="list-style-type: none">■ GHG reduction : 40%-45% to 2005 level by 2020
Malaysia	<ul style="list-style-type: none">■ Conditional 40% reduction in Carbon Intensity compared to 2005 levels by 2020



MALAYSIAN POLICIES RELATED TO SUSTAINABLE ENERGY

a) Green Technology Policy (2009)

- Driver of new economic growth
- Main Objective of Green technology Policy
 - Energy - Seek to attain energy independence and promote efficient utilisation;
 - Environment - Conserve and minimize the impact of human activities on the environment;
 - Economy - Enhance the national economic development through the use of technology; and
 - Social - Improve the quality of life for all.

b) National Policy on Climate Change 2009

- To ensure climate-resilient development to fulfill national aspirations for sustainable development
- Objectives:
 - Mainstreaming climate change through wise management of resources & enhanced environmental conservation resulting in strengthened economic competitiveness & improved quality of life;
 - Integration of responses into national policies, plans & programmes to strengthen the resilience of development from potential impacts of climate change; and
 - Strengthening of institutional & implementation capacity to better harness opportunities to reduce negative impacts of climate change

Malaysian National RE Policy and Action Plan 2010

- To enhance the utilisation of **indigenous renewable energy resources** to contribute towards national **electricity supply security** and **sustainable socio-economic development**

Objectives:

- To increase RE contribution in the national power generation mix;
- To facilitate the growth of the RE industry;
- To ensure reasonable RE generation costs;
- To conserve the environment for future generation; and
- To enhance awareness on the role and importance of RE.



RENEWABLE ENERGY

Renewable Energy Development in Malaysia

8TH Malaysia Plan (2001 - 2005)

- RE as the 5th Fuel
- 5% RE in energy mix

9th Malaysia Plan (2006 – 2010)

- **Targeted RE capacity to be connected to power utility grid:**
 - 300 MW – Peninsular Malaysia; 50 MW - Sabah
- **Targeted power generation mix:**
 - 56% natural gas, 36% coal, 6% hydro, 0.2% oil,
 - 1.8% Renewable Energy
- Carbon intensity reduction target: 40% lower than 2005 levels by 2020

RE as of 30 September 2012

- Connected to the utility grid (as of 2012): **74 MW (25% from 9th MP target)**
- Off-grid: >430MW (private palm oil millers and solar hybrid)

Malaysian National RE Policy and Action Plan 2010

Strategic Thrusts

Strategic Thrust 2:
Provide Conducive Business
Environment for RE

Strategic Thrust 3:
Intensify Human Capital
Development

Strategic Thrust 1:
Introduce Legal and
Regulatory Framework

Strategic Thrust 5:
Create Public Awareness &
RE Policy Advocacy
Programmes

Strategic Thrust 4:
Enhance RE Research and
Development

Malaysian National RE Targets

Year	Cumulative RE Capacity	RE Power Mix	Cumulative CO ₂ avoided
2015	985 MW	5.5%	11.1 mt
2020	2,080 MW	11%	42.2 mt
2030	4,000 MW	17%	145.1 mt

Note: RE capacity achievements are dependent on the size of RE Fund

FiT Implementation In Malaysia

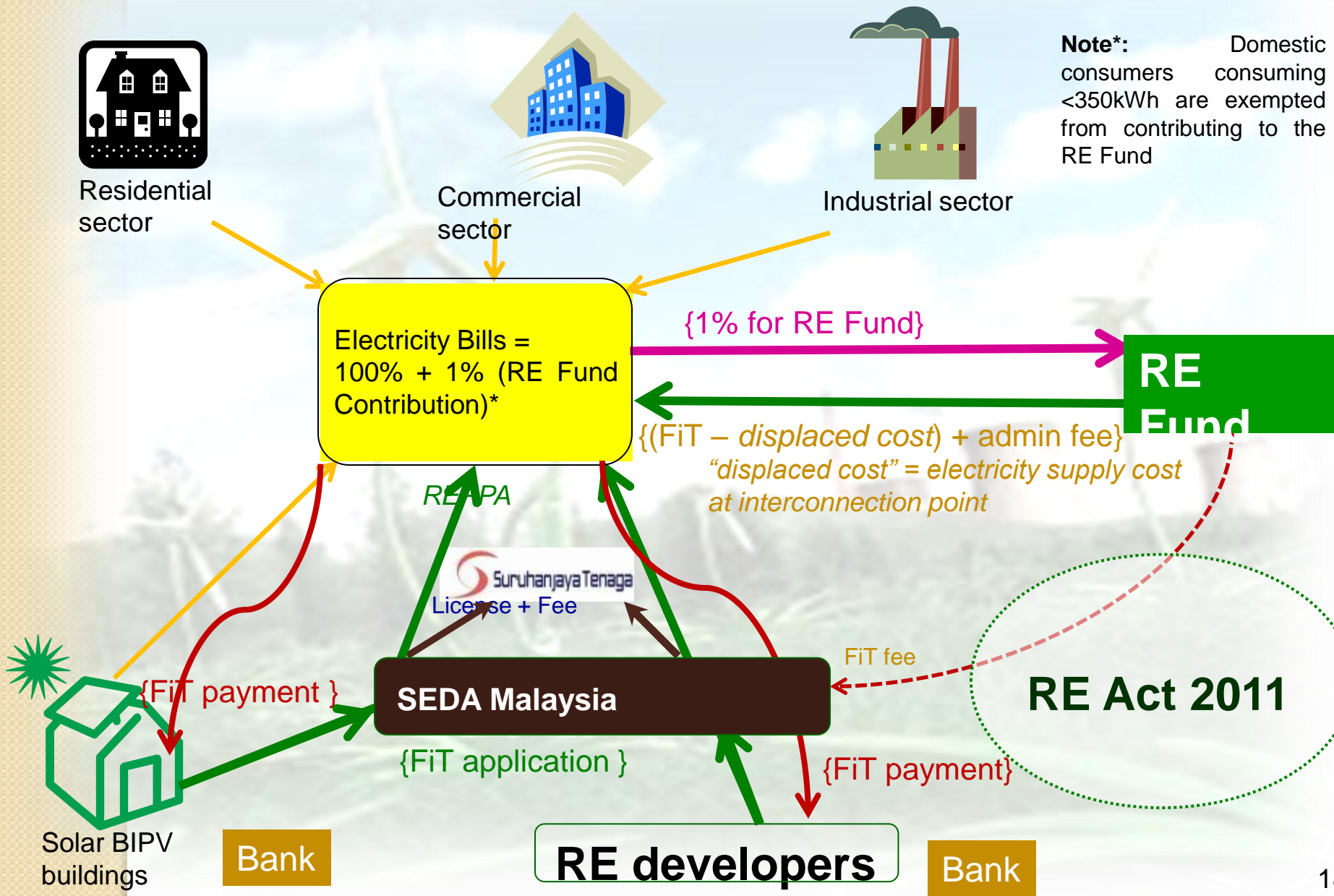
➤ Feed in Tariff (FiT)

- a mechanism that allows electricity produced from indigenous RE resources to be sold to power utilities at a **fixed premium price for specific duration**

➤ FiT guaranteed by RE Act 2011

- Access to the grid is guaranteed – utilities legally obliged to accept all electricity generated by RE private producers
- approval procedures are streamlined and clear
- FiT rates
 - high enough to produce ROI + reasonable profit
 - fixed for a period to give certainty & provide clear investment environment
 - adequate "degression" to promote cost reduction to achieve “grid parity”
- Implementation by a competent agency – SEDA Malaysia

FiT Mechanism For Malaysia



Renewable Energy Act 2011 (Act 725)

- An Act to provide for the establishment and implementation of a special tariff system to catalyse the generation of renewable energy and to provide for related matters.
- Outlines provisions for:
 - FiT mechanism's implementation
 - Establishment of RE Fund
 - SEDA Malaysia as implementing agency
- Enforced on 1st December 2011



ENERGY EFFICIENCY

a) Efficient Use of Electricity: Section 23 Electricity Supply(Amendment) Act 2001

- Section 23 A: The Minister may, from time to time, prescribe the standards, specifications, practices and measures to be adopted and any other matters in respect of the efficient use of electricity.
- Section 23 B: No person shall use or operate any installation unless the installation meets such requirements as may be prescribed in respect of the efficient use of electricity.
- Section 23 C: No person shall manufacture, import, sell or offer for sale or lease any equipment unless the equipment meets such requirements as may be prescribed in respect of the efficient use of electricity.

b) Efficient Management of Electrical Energy Regulations (2008)

- Applies to any installation with a total electricity consumption equal to or **exceeding 3,000,000 kWh over a period of 6 consecutive months**
- Effective date: 15 Dec 2008
- Obligation by installation owners to submit information on:
 - Appointment or designate a Registered Electrical Energy Manager (REEM);
 - to submit a written confirmation of such appointment or designation (name, particulars, date of expiry of registration)
- STATUS:
 - As of End 2011 - 1657 installations affected under the law.
 - Total of 185 REEM and managing 350 installations.

c) National Key Economic Areas (NKEA): Oil, Gas and Energy (OGE) – EPP 9: Energy Efficiency

Key Focus Areas

Initiatives

1



Leading by example

2



New appliances

- **Government to lead by example on energy efficiency practices**
 - *Promotion on Energy Saving Programme to 105 energy intensive Government Buildings selected under the Efficient Management of Electrical Energy Regulation 2008.*
 - *Setting air-condition temperature at 24 degree C in Govt Buildings*
- **Give retailers incentives on sales of small capacity appliances** to increase sales of energy efficient goods amongst low-middle income households
- **Promotion of Electrical Appliances with Minimum Energy Performance Standards (MEPS) under the SAVE Rebate Programme.**

d) TOOLS FOR EFFICIENT USE OF ENERGY IN BUILDINGS

- MS 1525: Code of Practice for Energy Efficiency and Use of Renewable Energy for Non-Residential Buildings
 - introduced in 2001 & updated in 2008
 - design of commercial buildings
 - assist builders to incorporate RE & EE features
 - Code is mandatory under the Uniform Building By- Laws (UBBL)
 - Barriers
 - In implementation – lack of capacity in Local Authorities

e) Promotion of Energy Efficiency Buildings in Malaysia

Showcase Energy-Efficient Buildings

Low Energy Office LEO



- ❑ 1st showcase model completed in 2004 (GBI-Silver)
- ❑ demonstrate the feasibility of EE design standards as implied in MS1525 :2001 Code of Practice on EE & Use of RE for Non-Residential Buildings
- ❑ Building Energy Index – **100 kWh/m² annually**
- ❑ **CO2 reduction 56%**

Green Energy Office GEO



- ❑ 1st certified green building in Malaysia (GBI-Certified).
- ❑ Demonstrate advance EE and RE design for commercial building- 2007
- ❑ Building Energy Index - **65kWh/m² annually**
- ❑ Solar Energy - 35kWh generated
- ❑ **CO2 reduction 86%.**

Diamond Building



- ❑ Improved from both LEO & GEO building experience.
- ❑ Platinum certificate, from Malaysia's Green Building Index (GBI) and Singapore's Green Mark.
- ❑ Building Energy Index- **85 kWh/m² annually**

f) Labeling & Star Ratings

- Voluntary measure introduced in 2005
- Provide energy performance information labels & help consumers make informed choices when purchasing electrical appliances
- Currently 4 equipments are rated:
 - ❖ Refrigerator
 - ❖ Air-conditioner
 - ❖ Television
 - ❖ Fan
- Expanding on existing and new equipments such as lighting (CFL, LED, etc), various types of fans, televisions, etc

SAVE ENERGY MONEY



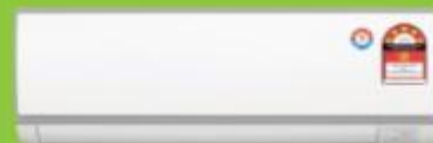
ENERGY-EFFICIENT
APPLIANCES

REBATES



REFRIGERATOR

RM200/unit



AIR-CONDITIONER

RM100/unit

Log on to www.saveenergy.gov.my to check your eligibility and print the SAVE rebate voucher

REBATE FOR CHILLER REPLACEMENT

RM200 PER REFRIGERATION TON (RT)



Water-cooled Chiller
(comply with MS1525:2007 standard)

Log on to www.saveenergy.gov.my
to download application form and guidelines

Sustainability Achieved Via Energy Efficiency (SAVE) Programme

2011 TOTAL TARGET ENERGY SAVINGS
127.3GWh

New appliances




Energy reduction potential

7,300GWh

GNI impact

-USD1.6 Billion



Type of Appliances		Fridges	Air - Conditioners	Chillers
				
Allocation	Target # of Units	100,000 units	65,000 units	72,000RT
	Offered Rebates Per Unit	RM200	RM100	RM200
	Total Budget	RM20mil	RM6.5mil	RM14.4mil
2011 Target Savings ¹	Energy	24.9GWh	48.75GWh	53.6GWh
	Cost	RM5.4mil	RM10.6mil	RM16.8mil
	CO ₂ (tons/year)	17,181	33,638	36,992
	Estimated Lifetime Savings ²	RM38mil	RM74.4mil	RM252mil

Expected Total Energy Savings² : 1,319.6GWh (equivalent to RM364.2mil)

¹ Target energy and cost savings at current tariff rate

² Lifetime saving for fridge and air conditioner in 7 years; for chillers in 15 years

WAY FORWARD

a) Renewable Energy

- Options to ramp-up renewable energy capacity
- Local capacity building – trainings
- 2,000 Solar PV Rooftops Programme

b) Energy Efficiency

- Finalizing the National Energy Efficiency Master Plan
- Energy Commission to strengthen capacity for implementing EE regulation & initiatives



THANK YOU